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Title	**Evaluation of Fastener Pull Through Resistance of Aluminum**
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Abstract

Bird-strike is a potentially serious and damaging event for the leading edges of aircrafts. The leading edges of wing and empennage structures are required to meet the regulatory FAR 25.571 and 25.631 respectively for any bird strike damage. One of the design methodologies followed in the leading edge is to have skin, rib and baffle so that incase of penetration of the skin, the baffle will prevent the bird from impacting on the spar. During bird impact on such leading edges, the fasteners in baffle plate are subjected to pull through tensile forces due to buckling of the skin. Hence, skin to baffle connection is important and its pull through strength is an important parameter which needs to be estimated for different fastener types and material configurations. The pull through strength is determined from the maximum load taken by the rivets before the rivets get pulled out through the thickness of the aluminum plates or before rivet head/bulb failure occurs. This report discusses the test carried out on aluminum plate with different types of rivets and rivet fastening configuration as per ASTM D 7332 procedure. These tests were performed for aluminum plate connected to the test fixture through the following rivets viz., steel, aluminum (heat treated & Non-heat treated) for 2 different diameters. The failure mode, pull through strength were evaluated and based on these tests, a suitable rivet (material, diameter) was recommended for use in the leading edge assembly.